

Systematic Review of Mental Health Court Efficacy in Reducing Recidivism and Improving
Treatment Outcomes

Thesis

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Abstract

The current proportion of inmates with a serious mental illness is higher than the proportion of persons with a serious mental illness in the general United States population. In the past two decades, mental health courts have emerged in an effort to direct people with a serious mental illness in the criminal justice system towards the resources they need for recovery rather than simply and only punish them. Operating under the principal of therapeutic jurisprudence, these courts take special consideration for the emotional and psychological well-being of the offender. This systematic literature review evaluates the effect mental health courts have on criminal recidivism and treatment outcomes of persons with mental illness who participate in them and discusses the implications of its findings on future research directions.

Dedication

This study is dedicated to my parents, who have always encouraged my studies, my wonderful fiancée Jacob Strine who supported me during this process, and all of the friends and family who have helped me throughout my education.

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Chapter 1: Background and Significance

Research on police attitudes towards people with mental illness finds that police believe a person with mental illness to be more dangerous than a person for whom no mental illness information is provided (Watson, Corrigan, & Ottati, 2004). Additional research on the level of danger a police encounter poses to people with mental illness and the police shows that injuries during police calls that involve a person with mental illness are infrequent and do not often require medical attention and that the predictors of injury are similar to the predictors of injury in police encounters with the population overall (Kerr, Morabito, & Watson, 2010). The perception of the mentally ill as dangerous is stigmatizing; the notion could even pose its own threat, as this perception could lead to a self-fulfilling prophecy during the course of a police encounter with a person with mental illness. This stigma could also prevent people with mental illness from accessing resources they may need, including as victims or witnesses of crime.

The perception of the mentally ill as dangerous is not new nor is it only present in the police. There is a lengthy history of mistreatment of people with serious mental illness. Once the mentally ill, or ‘criminally insane,’ were no longer imprisoned when they were deemed dangerous, they were committed to state hospitals where their treatment and medication compliance could be monitored. As these state hospitals closed in the 1950’s, patients with serious mental illness were released with little or no access to treatment or medication. Since then, the proportion of inmates with a serious mental illness have risen, and they are currently at a higher rate than the proportion of persons with a serious mental illness in the general United States population (Cross, 2011).

Mental health courts have been created in cities around the country in an effort to direct people with mental illness in the criminal justice system towards the resources they need for

recovery rather than simply and only punish them. Operating under the principle of therapeutic jurisprudence, these courts take special consideration for the emotional and psychological well-being of the offender (Wexler, 2000).

Mental Health Court Eligibility

As a special treatment court, each mental health court establishes its own eligibility requirements. Some MHCs only hear cases of defendants charged with misdemeanor, non-violent crimes while others process defendants charged with felony violent crimes or drug related offenses. In some cases, the victim(s) of the crime or family members of the accused may be consulted before the case is admitted to the mental health court (Wolff, Fabrikant, & Belenko, 2011).

One study, by Wolff, Fabrikant, and Belenko, of the referral and selection process of six mental health courts found that the courts vary widely in the types of diagnoses they will accept. Some courts define their criteria broadly, as any Axis I disorder, dementia, organic brain damage, developmental disabilities, or chronic alcoholism with psychosis. Other courts used more restrictive criteria, only including schizophrenia, schizoaffective disorder, or bipolar disorder. Some courts considered admittance of defendants with a mental illness outside of their recognized eligibility criteria; courts were more likely to admit these defendants if there was a strong association between the mental illness and the crime, unless the primary diagnosis of the defendant was a personality or substance use disorder (Wolff, Fabrikant, & Belenko, 2011).

Mental Health Court Process

Mental health courts are voluntary and require the consent of defendants to have their case heard in the mental health court rather than in a traditional court. Mental health courts have judges as do traditional courts, but these judges take into account the psychosocial functioning and mental health needs of a defendant as well as their criminal history and behavior. Judges in mental health courts are an active part of motivating defendants to utilize and engage in treatment resources, discussing treatment needs and progress with defendants during regular status hearings (Boothroyd, Poythress, McGaha, & Petrila, 2003).

Chapter 2: Methods

Approach

This thesis took the approach of a systematic literature review. Based on a brief review of the literature, there is some research on the effectiveness of mental health courts in reducing the rate of criminal recidivism for the persons who participate (Dirks-Linhorst & Linhorst, 2012). While mental health courts are documented to increase treatment usage among participants (Boothroyd, Poythress, McGaha, & Petrila, 2003), more research is needed to understand the effect of the treatment component. If mental health courts do in fact reduce recidivism rates and increase treatment usage, then identifying the characteristics of mental health courts which contribute to those successes is paramount to informing future mental health court interventions. Additionally, understanding the current effect of the increase in treatment usage among mental health court participants can inform future improvements to current mental health treatment interventions. With the approach of a systematic literature review, this research project will synthesize the information from various studies on the effects of mental health courts with the aim of investigating the general effectiveness of mental health courts in reducing criminal recidivism and improving treatment outcomes for people with mental illness.

Study Selection

The search for evidence on the efficacy of mental health courts in reducing recidivism and improving treatment outcomes was conducted on the Ohio State University library website, which has access to hundreds of different databases and can search them all for the same keywords simultaneously. The keywords “mental health court” and “recidivism” were searched. Boolean search terms were used to search for articles which contained both phrases in the title or

text. Other keyword combinations which were used in the search are “mental health court” and “treatment,” “mental health court” and “treatment outcome,” and “mental health court” and “clinical outcome.” Articles which were not from peer-reviewed academic journals were excluded from the search. Articles which included information about the effect of mental health courts on recidivism or treatment were set aside for further review.

Quality Assessment of Selected Studies

Of the fourteen studies which included information about mental health court effect on recidivism of participants, nine were excluded for various reasons including small sample sizes ($N < 100$), focus on a non-adult population, study location outside of the United States, and a lack of quantitative reporting of results. Five studies measuring the effect of mental health courts on rates of criminal recidivism of participants were included in the final review.

Of the eight studies which included information about mental health court effect on treatment outcomes of participants, four were excluded for various reasons including small sample sizes, focus on a non-adult population, a lack of quantitative reporting of results, and/or a lack of rigorous testing of relationships between recorded data. Four studies measuring the effect of mental health courts on treatment outcomes and related factors were included in the final review.

Chapter 3: Results

Effectiveness of Mental Health Courts in Reducing Criminal Recidivism

All studies included in this section of the review, which investigated mental health court efficacy in reducing criminal recidivism, measured the results in percentage of participants who recidivated by the end of the study period. Data was used to perform various statistical analyses between groups. Three of the five studies included a control group, a group of study participants who received treatment as usual in a traditional court. Two studies measured recidivism rates for participants who were eligible for mental health court but opted to have their case heard in traditional court, as well as recidivism rates for participants. One study included in the review measured only recidivism rates for participants of a mental health court program. All five studies examined mental health court participants in two subgroups for analysis, completers and non-completers of the mental health court program.

Herinckx, Swart, Ama, Dolezal, and King published a study in 2005 which monitored the recidivism of 368 mental health court participants for 12 months after exiting the court and compared it with the number of arrests in the 12 months prior to their enrollment in the court. In the year following their enrollment in the court, 54% of mental health court participants had not been re-arrested and the number of arrests accrued by the remaining participants was one-quarter the number of arrests accrued by the entire group in the 12 months pre-enrollment (Herinckx, Swart, Ama, Dolezal, & King, 2005). This suggests that mental health courts can reduce criminal recidivism in participants. The authors noted particular success for participants who graduated from the mental health court program. After controlling for demographic factors, it was found that, “MHC clients who did not graduate were 3.7 times as likely to reoffend compared with those who did graduate” (Herinckx, Swart, Ama, Dolezal, & King, 2005).

The distinction between completers of a mental health court program and non-completers is a significant theme in the study of the efficacy of mental health courts in reducing recidivism of participants. A study by Dirks-Linhorst and Linhorst published in 2010, also found distinctly different results when comparing the rates of recidivism of completers of a mental health court program and non-completers. Rates of recidivism for defendants who were eligible to participate in the mental health court but opted to have their case heard in traditional court were also recorded. Recidivism of study participants was measured for one year after discharge from the court, allowing for a different picture of recidivism patterns than provided by the previous study by Herinckx, Swart, Ama, Dolezal, and King, which monitored recidivism during the year post-enrollment in the court, during which all study participants were involved with the court for some period of time.

The present study by Dirks-Linhorst and Linhorst provides data on study participants during the year immediately following their involvement in the mental health court. The re-arrest rates of participants who successfully completed the mental health court program was 14.5%, while 38% of defendants who were negatively terminated from the mental health court recidivated in the year following discharge from the court. The re-arrest rate for eligible defendants who chose not to participate in the mental health court was 25.8% (Dirks-Linhorst & Linhorst, 2010). After controlling for the effects of the characteristics of participants in a Cox regression analysis, the lower rate of re-arrest for participants who successfully completed the mental health court program remained ($p=.000$). Rates of re-arrest for participants who completed the program were lower than rates of re-arrest for participants who were negatively terminated from the program and for defendants who chose not to participate by degrees that are statistically significant, with the exception of state felonies and state violent felonies, and state

misdemeanor/felonies and state felonies, respectively (Dirks-Linhorst & Linhorst, 2010). These are statistically strong findings which show that graduation from a mental health court program leads to reduction in recidivism of participants. The comparison between groups of non-participants and defendants negatively terminated from the program shows the importance of retention of mental health court participants and graduation from the program.

In 2007, McNiel and Binder published a study of the recidivism rates for 170 participants of the San Francisco Mental Health Court and 8,067 defendants diagnosed as having a mental disorder who received treatment as usual in San Francisco courts. Because the study utilized de-identified data in its analysis, informed consent was not necessary, and authors were able to study a large control group with a retrospective observational design (McNiel & Binder, 2007). Similar to the study by Herinckx, Swart, Ama, Dolezal, and King, this study of recidivism rates uses data from the year following enrollment in the mental health court, during which all participants had some period of involvement with the court. A survival analysis was conducted comparing the mental health court and treatment as usual group in order to assess whether participation in mental health court was associated with an increase in time to re-arrest. After controlling for the characteristics of participants and the type of charges during the 12-month baseline period, “period, the Cox proportional hazards models showed that mental health court participation predicted a longer time to any new charge ($B=-0.63$, $p<0.0001$) and longer time to a new violent charge ($B=-2.36$, $p<0.0001$)” (McNiel & Binder, 2007). Not only are these findings statistically significant, they show an association between any length of participation in mental health court – the median time that participants spent in this particular mental health court was 8.3 months – and a longer time to re-arrest. Although this study found that completion of the mental health court program was associated with longer maintenance of reductions in recidivism

and violence, the finding that any length of participation in the mental health court can lead to significant reductions in recidivism and violence of participants is particularly significant (McNiel & Binder, 2007).

Another study, published by Hiday, Ray, and Wales in 2016, examines the re-arrest rates of defendants of a mental health court during the two years following their exit from the court, and its findings provide further support for the association between mental health court participation and reductions in recidivism of participants. During the two-year study period during which the rates of recidivism of 408 mental health court participants and 687 participants receiving treatment as usual were monitored, it was found that “MHC participants were significantly less likely than TCC participants to be rearrested in the follow-up period (38% versus 48%; $\chi^2=10.99$, $df=1$, $p=.001$)” (Hiday, Ray, & Wales, 2016). Authors also found significantly lower rates of re-arrests for completers of the mental health court when compared with non-completers. At the two-year follow-up, completers of the program had the smallest proportion re-arrested (25% versus 55% of non-completers and 48% of the treatment-as-usual group) and the lowest number of re-arrests (Hiday, Ray, & Wales, 2016). This particular success, during a longer period of 2 years, of the group of mental health court participants who successfully completed the program provides additional evidence for increased reductions in mental health court participants who graduate from the program compared to mental health court participants who do not complete the program.

The final study included in the review of mental health court efficacy in reducing recidivism of participants was published in 2014 and examines data for defendants over a significantly longer period of time than previous studies (Ray, 2014). This allows for an assessment of the long-term effects of mental health court participation on recidivism of

participants, as well as a more robust comparison of this effect between completers of the mental health court and non-completers. During this extended follow-up period (minimum of 5 years and maximum of over 10 years), almost half (46.1%) of all mental health court participants did not recidivate (Ray, 2014). A statistically significant difference between recidivism in completers and non-completers of the mental health court program was also found.

“Noncompleters were almost twice as likely to have recidivated (74.5% vs. 39.6%, $\chi^2 = 59.03$, $p = .001$) and to recidivate with a felony arrest (68.4% vs. 31.6%, $\chi^2 = 12.93$, $p = .001$) than those who completed the MHC” (Ray, 2014). This finding provides even further evidence of significantly larger reductions in recidivism for participants of mental health court programs who graduate from the program when compared to participants who do not complete the program. Even further, the long period of study provides evidence of maintained reductions in recidivism for participants of mental health court.

Table 1: Mental Health Court Efficacy in Reducing Criminal Recidivism

Title	Recidivism Outcomes for Suburban Mental Health Court Defendants	Rearrest and Linkage to Mental Health Services Among Clients of the Clark County Mental Health Court Program	Longer-Term Impacts of Mental Health Courts: Recidivism Two Years After Exit	Effectiveness of a Mental Health Court in Reducing Criminal Recidivism and Violence	Long-term recidivism of mental health court defendants
Author	Dirks-Linhorst, Linhorst	Herinckx, Swart, Ama, Dolezal, King	Hiday, Ray, Wales	McNiel, Binder	Ray
Year Published	2010	2005	2016	2007	2014
Time Monitored	1 year after exit	1 year after entry	2 years after exit	1 year after entry	5-10 years
Size of Group	N = 577	N = 368	N = 408 MHC N = 687 TAU	N = 170 MHC N = 8,067 TAU	N = 449
Results (measured in % recidivated)	completers 14.5% (p=.000) terminated 38% opted out 25.8%	Non-completers 3.7 times as likely to re-offend as completers.	MHC participants significantly less likely than TAU participants to be rearrested in the follow-up period (38% vs. 48%; $\chi^2=10.99$, $df=1$, $p=.001$)	Participation in MHC associated with longer time without new criminal charges. Completion of MHC associated with maintenance of reductions in recidivism and violence.	Non-completers almost twice as likely to have recidivated (74.5% vs. 39.6%, $\chi^2 = 59.03$, $p<.001$)

Effectiveness of Mental Health Courts in Improving Treatment Outcomes

Mental health court relationship to treatment and clinical outcomes can be measured in a variety of ways, including the frequency or amount of mental health treatment received, change in psychosocial functioning, and time to access treatment. In 2003, Boothroyd, Poythress, McGaha, and Petrila published an article in the *International Journal of Law and Psychiatry* detailing the process, outcomes, and service utilization of 116 Broward County Mental Health Court participants and 97 defendants in a traditional court. Combining administrative data and self-report data about the volume of mental health service usage of defendants for the 8 months following the initial court appearance, they found a 61.6% increase in the mean number of service units that participants of the mental health court received, and an 18.3% decrease for defendants in traditional court. The effect size for this difference in service volume by type of court is .44, nearly a moderate effect (Boothroyd, Poythress, McGaha, & Petrila, 2003).

This significant difference between the volume of mental health services which mental health court participants receive compared to the volume received by defendants in traditional court is expected, as continuation in a mental health court program hinges on treatment participation and compliance. Measuring only volume of services received provides incomplete information for an evaluation of the effect of a mental health court on the treatment outcomes of its participants. The quality of a treatment intervention must be assessed in relation to the outcomes of the participants who receive the intervention.

In 2005, Boothroyd, Mercado, Poythress, Christy, and Petrila published a study in the *Journal of Psychiatric Services* measuring the clinical outcomes of defendants in the Broward County Mental Health Court as well as those of defendants in a traditional court. Treatment usage for all 174 defendants was measured with self-report and administrative data. The Brief

Psychiatric Rating Scale—Anchored Version (BPRS) was used to monitor the clinical status of defendants in the two courts. Clinical symptoms were measured using the BPRS at 1, 4, and 8 months after the initial court appearance. Authors reported, “This version of the BPRS consists of 18 symptoms (for example, suspiciousness, disorientation, and anxiety) that are rated for frequency and severity on a 7-point scale. The BPRS yields a global index of the severity of current psychopathology and four subscores associated with psychoticism, emotional withdrawal, hostility, and depression. Scoring is based on self-report and behavioral observations during a clinical interview” (Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005).

Boothroyd, Mercado, Poythress, Christy, & Petrila found that during the eight-month follow-up period, “defendants’ total BRPS scores increased an average of $.7 \pm 10.4$, representing a nonsignificant effect size of .08.” Due to a variety of factors including lack of resources, transportation, or treatment motivation and compliance, some defendants in both courts whose psychopathology was measured did not receive treatment during the study period. While controlling for intake BPRS scores, analyses of covariance (ANCOVA) were conducted to investigate whether the change in BPRS scores was related to type of court, receipt of treatment, or an interaction between the type of court and receipt of treatment. No significant main effects on BPRS scores were found for type of court, receipt of treatment, or an interaction between the two (Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005).

The lack of change in BPRS scores, in defendants of both courts who did and who did not receive treatment, does not necessarily point to a failure of the mental health court to effect change in the psychosocial functioning of its defendants. While a mental health court can be effective in increasing the volume of service usage in its defendants, it cannot control the quality of the mental health services its defendants receive. Boothroyd et al. posit that the lack of

“positive changes in defendants’ clinical outcomes . . . speaks more to the adequacy of the mental health service systems in these counties than to the effectiveness of the mental health court in meeting the court’s articulated goals” (Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005). Additionally, the quality of mental health treatment is not the only factor which contributes to positive changes in psychosocial functioning or a decrease in clinical symptoms. Boothroyd et al. postulate that, “. . . it may be that defendants in both courts predominantly had chronic illnesses in which, barring recurrent acute psychotic episodes, substantial changes in clinical presentation are infrequent irrespective of treatment” (Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005). The type of mental illness that an individual must cope with, as well as their level of treatment motivation, medication compliance, and the appropriateness of the applied intervention all play a part in the level of positive change in symptomology and psychosocial functioning an individual is able to achieve. For some individuals with severe and chronic mental illness(es), measuring change in symptoms or psychosocial functioning over time does not give an accurate picture of that individual’s level of ‘success’ or ‘failure’ in treatment. For these individuals, a lack of change in these areas over time may represent a period of stabilization, which may be successful in itself for an individual with chronic and severe mental illness who experiences crises frequently.

Keator, Callahan, Steadman, and Vesselinov published a study in 2013 which measured treatment participation rates for the 6 months after the initial court appearance of 296 participants of a mental health court and of 386 defendants in a traditional court, using self-report and administrative data (Keator, Callahan, Steadman, & Vesselinov, 2013). The goal of the study was to evaluate the impact of mental health courts and mental health treatment on the public

safety outcomes of the participating defendants; considerable data about the types of services participants received during the course of the mental health program was also recorded.

Keator, Callahan, Steadman, and Vesselinov found that on discharge from jail on target charges, mental health court participants accessed treatment more quickly than the defendants in the control group, receiving treatment as usual. Defendants in the mental health court averaged 7 days to access treatment, while defendants in traditional court averaged 64 days to access treatment (Keator, Callahan, Steadman, & Vesselinov, 2013). One study, which was included in the review of mental health court efficacy in reducing recidivism, also noted the treatment linkage of mental health court participants, “Newly enrolled MHC clients were linked to mental health services within three to ten days of enrollment” (Herinckx, Swart, Ama, Dolezal, & King, 2005). Mental health court participants were also found to access less crisis and more therapeutic treatment during the 12 months after enrollment in the mental health court (Keator, Callahan, Steadman, & Vesselinov, 2013). These are positive findings, suggesting quicker access to treatment and more appropriate linkage to and use of services by participants of mental health courts. However, knowing that continuation in a mental health court program hinges on treatment participation and compliance, finding that mental health court participants accessed treatment more quickly than their counterparts receiving treatment as usual is not unexpected. Authors also commented on the finding that mental health court participants were using less crisis services and more therapeutic treatment services, “This was expected given their MHC enrollment with its treatment plan and judicial supervision” (Keator, Callahan, Steadman, & Vesselinov, 2013).

Understanding that experiencing high treatment volume does not necessarily yield positive treatment outcomes, the clinical outcomes of mental health court participants must be

measured in a more complex way in order to understand the effectiveness of treatment. Keator et. al recognize the limitations of measuring treatment by volume, “measuring treatment in the aggregate without measuring treatment quality, responsivity to services provided, or whether the services are appropriately matched to the client is inadequate” (Keator, Callahan, Steadman, & Vesselinov, 2013).

A more recent study published in 2016 in the *Journal of Psychiatric Services*, investigates the impact of community treatment on recidivism of mental health court participants by measuring the use of community mental health and substance-abuse services, as well as levels of treatment motivation and perceived voluntariness of treatment of 357 participants of a mental health court and 384 defendants in traditional court (Han & Redlich, 2016). Recidivism rates were measured for 6 months post-enrollment, and the relationship between the use of services during enrollment and recidivism post-enrollment was analyzed for both groups. Over time, use of treatment increased for both groups, “however, after the analysis weighted treatment use by days in the community and controlled for pre-enrollment differences,” it was evident that the mental health court treatment group received significantly more community mental health and substance abuse services than their treatment-as-usual counterparts (Han & Redlich, 2016). This finding supports the growing body of literature showing a positive relationship between mental health court participation and volume of treatment received. When the relationship between treatment-related variables and re-arrest was examined, treatment was found to be associated with re-arrest in the mental health court group, but not the treatment-as-usual group. For the mental health court group, “increases in medication compliance and mental health service use were associated with significant reductions in the likelihood of arrests” (Han & Redlich, 2016).

Table 2: Mental Health Court Efficacy in Treatment Outcomes

Title	The Broward Mental Health Court: Process, Outcomes, and Service Utilization	The Impact of Community Treatment on Recidivism Among Mental Health Court Participants	The Impact of Treatment on the Public Safety Outcomes of Mental Health Court Participants	Clinical Outcomes of Defendants in Mental Health Court
Authors	Boothroyd, Poythress, McGaha, and Petrila	Han, Redlich	Keator, Callahan, Steadman, Vesselinov	Boothroyd, Mercado, Poythress, Christy, Petrila
Year	2003	2016	2013	2005
Time monitored	8 months after entry	6 months after entry	6 months after entry	8 months after entry
Group size	N = 95 MHC N = 97 TAU	N = 357 MHC N = 384 TAU	N = 296 MHC N = 386 TAU	N = 97 MHC N = 77 TAU
Results	61.6% increase in mean number of service units received for MHC participants; 18.3% decrease for defendants in traditional court (p=.44)	Increased medication compliance and increased use of treatment associated with reduced recidivism in MHC group, but not TAU group.	On discharge from jail on target charges, MHC participants accessed community treatment more quickly than TAU respondents (7 days vs. 64).	No significant main effects found on BPRS (Brief Psychiatric Rating Scale–Anchored Version) scores for type of court, receipt of treatment, or type of court and receipt of treatment.

Chapter 4: Discussion

Mental Health Courts and Treatment Outcomes

This systematic review supports the growing body of literature which shows a positive relationship between mental health court participation and increase in receipt of treatment services. The first of four studies included in this review documented a 61.6% increase in the mean number of service units that participants of a mental health court received, and an 18.3% decrease for defendants in traditional court. The effect size for this difference is .44, nearly a moderate effect (Boothroyd, Poythress, McGaha, & Petrila, 2003). In addition, it was found that mental health court participation is associated with quicker access of treatment services upon discharge from jail on the target charge, with mental health court participants in one study averaging 7 days to access treatment, compared to their treatment-as-usual counterparts who averaged 64 days (Keator, Callahan, Steadman, & Vesselinov, 2013). A study which was included in the review of mental health court efficacy in reducing recidivism also noted the time to access mental health treatment services after discharge, and it supported this finding, reporting that “newly enrolled MHC clients were linked to mental health services within three to ten days of enrollment” (Herinckx, Swart, Ama, Dolezal, & King, 2005).

Unfortunately, not all community mental health treatment received is of a high quality or even appropriately matched to the needs of the individual. Therefore, measuring treatment volume is inadequate to understand the effectiveness of the treatment. Of the one study included in this review which measured treatment outcomes by measuring clinical symptoms and level of psychosocial functioning, no significant change in symptoms or psychosocial functioning occurred during the study period in mental health court participants or in their treatment-as-usual counterparts who also received mental health treatment, suggesting that the mental health

treatments received were ineffective in improving the clinical outcomes of participants (Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005).

Although it would seem that measuring change in symptoms and level of psychosocial functioning would be the most straight-forward way to measure the effectiveness of a mental health treatment intervention, there are multiple other factors to consider which paint a more complete picture of an individual's "success" or "failure" in treatment. Boothroyd et. al consider the important role that diagnosis plays, ". . . it may be that defendants in both courts predominantly had chronic illnesses in which, barring recurrent acute psychotic episodes, substantial changes in clinical presentation are infrequent irrespective of treatment" (Boothroyd, Mercado, Poythress, Christy, & Petrila, 2005). The type of mental illness that an individual must cope with, as well as their level of treatment motivation, medication compliance, and the appropriateness of the applied intervention all play a part in the level of positive change in symptomology and psychosocial functioning an individual is able to achieve. For some individuals with severe and chronic mental illness(es), a lack of change in symptoms may even represent a period of stabilization. Measuring the success of an individual's mental health treatment requires an understanding of what is achievable for each individual's unique situation as well as an understanding of what it represents when different types of services are accessed over the course of a person's mental health treatment. One study found that mental health court participants accessed less crisis treatment services and more therapeutic treatment services during the 12 months after enrollment in the mental health court, suggesting more appropriate and timely use of services and a decreased need for crisis treatment (Keator, Callahan, Steadman, & Vesselinov, 2013).

This review found no evidence of mental health court efficacy in improving treatment outcomes; however considerable evidence was found that mental health court participation is associated with increased treatment usage and even quicker treatment access (Keator, Callahan, Steadman, & Vesselinov, 2013). Although no evidence was found for mental health court efficacy in improving treatment outcomes, one study found that for mental health court participants, increased treatment usage was associated with reductions in the likelihood of arrests. This study found that for mental health court participants, but not for their treatment-as-usual counterparts who received roughly the same amount of mental health treatment, “increases in medication compliance and mental health service use were associated with significant reductions in the likelihood of arrests” (Han & Redlich, 2016). This finding suggests that the treatment component of mental health court participation is integral in the reduction of recidivism in participants.

The present studies measured length of time to access treatment, volume of treatment received, types of treatment received by category (crisis, routine), treatment compliance, perceptions of voluntariness of treatment, and more. Future research on mental health court treatment should focus on a quality assessment of treatment providers and treatments as well as assess appropriateness of treatments. Authors of the studies included in this review expressed concern about the quality of mental health services provided to mental health court participants in their study (Boothroyd, Mercado, Poythress, Christy, & Pettila, 2005). Therefore, a study of the efficacy of mental health courts in improving treatment outcomes of participants may turn to a study of the treatments, their documented efficacy, their appropriateness to the diagnosis, and quality of their provision, first, rather than data on those receiving treatment, in order to fully evaluate the results of the effect of treatment.

Mental Health Courts and Criminal Recidivism

This review found considerable support for the conclusion that mental health court participation is effective in reducing criminal recidivism of participants. The five studies included in this review each found evidence of this in different statistical comparisons of groups. One study measured the recidivism rates of participants during the 12 months following their enrollment in the mental health court program and compared it to the rates of arrest during the 12 months prior to their enrollment. This study found that over half (54%) of participants did not recidivate during the study period (Herinckx, Swart, Ama, Dolezal, & King, 2005). Authors also identified an important distinction between completers and non-completers of the mental health court program in their analysis of the data, finding that non-completers were 3.7 times as likely to re-offend (Herinckx, Swart, Ama, Dolezal, & King, 2005).

The findings of McNiel and Binder support this significant difference in success between completers and non-completers of a mental health court program. A survival analysis comparing all participants with the treatment-as-usual group showed that mental health court participation predicted a longer time to any new charge ($B=-0.63$, $p<0.0001$) and any new violent charge ($B=-2.36$, $p<0.0001$), by a statistically significant degree (McNiel & Binder, 2007). A survival analysis comparing only graduates of the program to the treatment-as-usual group found that, “Mental health court graduates continued to show longer time before any new charges ($B=-1.79$, $p<0.0001$) and new violent charges ($B=-3.06$, $p<0.0001$) after graduating compared with those who received treatment as usual (McNiel & Binder, 2007). As well as adding to the evidence of increased reductions in recidivism for completers of a mental health court program,

this study contributes the important statistically significant finding of an association between any length of participation and reductions in criminal recidivism.

Both studies, by Herinckx, Swart, Ama, Dolezal, and King, and McNiel and Binder, studied recidivism of participants during a period of one year after their enrollment in a mental health court, during which all study participants had some period of involvement with the court. The study by Dirks-Linhorst and Dirks measured recidivism of participants during the year following their discharge from the mental health court. During the 12 months after exit, only 14.5% ($p=.000$) of completers of the mental health court program had recidivated, compared to 38% of defendants who were negatively terminated from the program, and 25.8% of eligible defendants who opted out (Dirks-Linhorst & Linhorst, 2010). After controlling for the effects of the characteristics of participants, this is statistically significant evidence in support of reductions in recidivism for completers of a mental health court program, with the exception of state felonies and state violent felonies (Dirks-Linhorst & Linhorst, 2010).

The final two studies included in this review measured rates of recidivism of study participants for longer periods of time than had previously been studied and found similar results. A study of the recidivism rates of mental health court participants during two years after exit found that mental health court participants were less likely to be re-arrested (38% v. 48%) than treatment-as-usual participants by a statistically significant degree ($p=.001$) (Hiday, Ray, & Wales, 2016). Completers of the program showed significantly greater reductions in recidivism, with the smallest proportion re-arrested during the two-year study period (25% versus 55% of non-completers and 48% of the treatment-as-usual group) and the lowest number of re-arrests (Hiday, Ray, & Wales, 2016). This study contributes to the growing body of literature demonstrating increased reductions in recidivism for completers of a mental health court

program, and it importantly shows efficacy for all participants in its finding of a statistically significant difference in likelihood of arrest between mental health court participants and the treatment-as-usual group.

The longest study of the effect of mental health court participation on recidivism of participants had a minimum study period of 5 years and a maximum study period of over 10 years. Over this study period, 46.1% of mental health court participants did not recidivate, and it was found that, “Noncompleters were almost twice as likely to have recidivated (74.5% vs. 39.6%, $p = .001$) and to recidivate with a felony arrest (68.4% vs. 31.6%, $p = .001$) than those who completed the MHC” (Ray, 2014). This extended period of study allows for an assessment of the maintenance of reductions in recidivism and violence, and the author identified a pattern of decreasing recidivism of mental health court participants over the years after their exit, suggesting that participants of a mental health court program are less likely to recidivate each year after they exit the program. This pattern suggests that the effect of reductions in recidivism in mental health court participants is sustained for several years after defendants are no longer involved with the mental health court (Ray, 2014).

The present studies found strong evidence to support the conclusion that mental health courts are effective in reducing criminal recidivism in participants, particularly for completers, and that the effect is sustained for several years after participants are no longer involved with the court. Future studies of mental health court effect on recidivism of participants should focus on factors associated with completion of a mental health court program, as well as assess barriers and facilitators to implementing measures which are designed to increase retention of participants. As this review of the literature has found, completers of mental health court programs experience increased reductions in recidivism when compared to non-completing

participants. Therefore, future research should assess the factors associated with retention in a mental health court program and evaluate measures designed to increase retention.

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